Patent claims

1. Polyurethane solutions with alkoxysilane structural units, characterized in that they are reaction products, in organic solution, of

a) at least one at least difunctional polyol of molecular weight 500 to 16,000,

b) at least one at least difunctional polyisocyanate of molecular weight 140 to 1,500,

c) at least one low molecular weight at least difunctional alcohol and/or amine of molecular weight 32 to 500,

d) at least one compound containing at least one alkoxysilane group and an isocyanate-reactive group and

e) optionally a monofunctional substance with an amino, alcohol or oxime group,

the amount of stopper agent equivalents from component d) being at least 50% of the total amount of stopper agent from d) and e).

2. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that they are reaction products, in organic solution, of

a) 40 to 92 wt.% of at least one at least difunctional polyol of molecular weight 500 to 16,000,

b) 7 to 50 wt.% of at least one at least difunctional polyisocyanate of molecular weight 140 to 1,500,

c) 0.5 to 20 wt.% of at least one low molecular weight at least difunctional alcohol and/or amine of molecular weight 32 to 500,

d) 0.1 to 5 wt.% of at least one compound containing at least one alkoxysilane group and an isocyanate-reactive group and

e) optionally a monofunctional substance with an amino, alcohol or oxime group,

the amount of stopper agent equivalents from component d) being at least 75% of the total amount of stopper agent from d) and e).

3. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that they are reaction products, in organic solution, of

a) 47 to 88 wt.% of at least one at least difunctional polyol of molecular weight 500 to 16,000,

b) 10 to 40 wt.% of at least one at least difunctional polyisocyanate of molecular weight 140 to 1,500,

c) 0.8 to 17 wt.% of at least one low molecular weight at least difunctional alcohol and/or amine of molecular weight 32 to 500,

d) 0.2 to 3.0 wt.% of a compound containing an alkoxysilane group and an isocyanate-reactive group and

e) 0-0.5 wt.% of a monofunctional substance with an amino, alcohol or oxime group,

the amount of stopper agent equivalents from component d) being at least 95% of the total amount of stopper agent from d) and e).

4. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that component a) comprises polycarbonate diols of molecular weight 900 to 2,500 to the extent of at least 50 wt.%.

5. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that they comprise as component a) 10 to 60 wt.% hydrophilic polyols, in addition to 23 to 50 wt.% non-hydrophilic polyols, in each case based on the total solids content of the polyurethane, the total amount of component a) being not more than 92 wt.% of the total solids content of the polyurethane.

6. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that they comprise as component b) exclusively aliphatic or cycloaliphatic diisocyanates comprising isophorone-diisocyanate to the extent of at least 75 wt.%.

7. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that they comprise as component b) exclusively 2,4- or 2,6-diisocyanatotoluene and/or 4,4'-diisocyanatodiphenylmethane.

8. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that they comprise as component b) diisocyanates containing allophanate groups.

9. Polyurethane solutions with alkoxysilane structural units according to claims 1 to 3, characterized in that they comprise as component c) hydrophilic difunctional compounds containing salt groups in amounts of 2 to 16 wt.%.

10. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that they comprise a hydrophilic component c) together with a hydrophilic polyol a).

11. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that they comprise diamino-functional components c) containing alkoxysilane groups as chain-lengthening agents in amounts of up to 2 wt.%.

12. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that they comprise as component c) hydrazine (hydrate), adipic acid dihydrazide and/or the reaction product of 2 mol propylene carbonate and 1 mol hydrazine in amounts of 0.1 to 1.5 wt.%.

13. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that they comprise 0.3 to 1.3 wt.% of a compound with an isocyanate-reactive group and at least one alkoxysilane group.

14. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that they comprise as component d) a monoamino-functional reaction product, containing aspartic acid ester structures, of a monoamino-functional alkoxysilane with 0.5 to 1.1 equivalents of maleic acid alkyl esters.

15. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that the mathematically determined content of $-Si-(O-)_3$ structural units in the solids of the polyurethane solutions is less than 1.2 wt.%.

16. Polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that they comprise as component d) a monoamino-func-

tional alkoxysilane in amounts of 0.3 to 1.3 wt.%, together with 0.1 to 2.0 wt.% of a diamino-functional alkoxysilane component c), the number of terminal alkoxysilane groups being at least 50 wt.% of all the alkoxysilane groups incorporated..

17. Process for the preparation of polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that an isocyanate-functional polyurethane is first prepared in a one- or two-stage reaction from at least one polyol a) and at least one difunctional polyisocyanate b), optionally co-using a low molecular weight component c), and then optionally undergoes a further build up in molecular weight in a further reaction step by reaction with an at least difunctional component c), and is reacted in a concluding reaction step with at least one compound d) containing an alkoxysilane group and an isocyanate-reactive group, optionally co-using a monofunctional component e), to give a high molecular weight polyurethane with alkoxysilane structural units which no longer contains free isocyanate groups, an organic solvent being added either before, during or after the first reaction step in an amount such that the resulting polyurethane solution with alkoxysilane end groups has a solids content of 9 to 65 wt.%.

18. Process for the preparation of polyurethane solutions with alkoxysilane structural units according to claim 1, characterized in that a one-stage reaction of components a), b) and optionally c) is carried out, optionally in the presence of suitable solvents, to give an isocyanate-functional high molecular weight polyurethane, the desired viscosity and therefore the molecular weight necessary to achieve the required properties optionally being achieved by subsequently adding a small amount of polyisocyanate b) and/or low molecular weight difunctional component c), and the chain-stopping reaction then being carried out by addition of a monoamino-functional alkoxysilane d).

19. Use of polyurethane solutions with alkoxysilane structural units according to claim 1 in paints, coatings, sealants and/or adhesives.

20. Use of polyurethane solutions with alkoxysilane structural units according to claim 1 for painting and/or coating plastics.

21. Use of polyurethane solutions with alkoxysilane structural units according to claim 1 for coating textiles and leather.

22. Use of polyurethane solutions with alkoxysilane structural units according to claim 1 in textile coatings which are permeable to water vapour.